

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Use of Spectrum Bands above 24 GHz)	GN Docket No. 14-177
For Mobile Radio Services)	
)	
Promoting Investment in the 3550-3700)	GN Docket No. 17-258
MHz Band)	
)	
Proposals from Entities Seeking)	GN Docket No. 15-319
to Be Spectrum Access System)	
Administrators and Environmental)	
Sensing Capability Operators in the)	
3550-3700 MHz Band)	
)	
Expanding Flexible Use in Mid-Band)	GN Docket No. 17-183
Spectrum between 3.7 and 24 GHz)	
)	
Petition to Modify Parts 2 and 101)	RM-11809
of the Commission's Rules to Enable)	
Timely Deployment of Fixed)	
Stratospheric-Based Communications)	
Services in the 21.5-23.6, 25.25-27.5,)	
71-76, and 81-86 GHz Bands)	

COMMENTS OF ELEFANTE GROUP, INC.

Elefante Group, Inc. (“Elefante Group”), by its attorneys, hereby provides comments in response to the Public Notice (“Notice”) released by the Wireless Telecommunications Bureau (“WTB”) and Office of Engineering and Technology (“OET”)¹ seeking comment in the above-referenced dockets to assist the agency with its obligations pursuant to the Spectrum Pipeline Act of 2015.² As set out in the *Notice*, pursuant to the *Spectrum Pipeline Act*, the Commission must,

¹ *Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment Pursuant to the Spectrum Pipeline Act of 2015*, GN Docket Nos. 14-177, 15-319, 17-183, and 17-258, Public Notice, DA 18-841 (WTB/OET Aug. 10, 2018) (“Notice”).

² *See* Spectrum Pipeline Act of 2015, Pub. L. No. 114-74, § 1008, 129 Stat. 621, 625 (2015), as amended by the RAY BAUM’S Act of 2018, Pub. L. 115–141, § 614, 132 Stat. 1080,

after issuing a notice and providing opportunity for comment, submit to Congress a report by November 2, 2018, containing analyses of (1) the results of the 2015 rule changes concerning the frequency range 3.55-3.65 GHz (the “3.5 GHz Band”) and (2) “proposals to promote and identify additional spectrum bands that can be shared between incumbent uses and new licensed and unlicensed services under such rules and identification of at least 1 gigahertz between 6 GHz and 57 GHz for such use” (the “Report”).³

While Elefante Group is observing the Commission’s efforts to make available more spectrum for flexible use through a ground-breaking sharing framework in the 3.5 GHz Band, its comments today are limited to assisting the Commission in satisfying its obligation on the second point. Specifically, Elefante Group takes the opportunity to respectfully suggest that the Commission include in its *Report* Elefante Group’s equally novel, pending proposal to establish a new and transformative Stratospheric-Based Communications Service (“SBCS”); this service operates on a co-primary basis in the 21.5-23.6 and 25.25-27.50 GHz bands (respectively, the “22-23 GHz Band” and “26 GHz Band”), as well as the 71-76 and 81-86 GHz bands (collectively, the “70/80 GHz Bands”).⁴

1109 (2018) (“Spectrum Pipeline Act”). Elefante Group’s Comments are filed pursuant to Section 1.415 of the Commission’s rules. 47 C.F.R. § 1.415.

³ Notice at 1.

⁴ See *Petition to Modify Parts 2 and 101 of the Commission’s Rules to Enable Timely Deployment of Fixed Stratospheric-Based Communications Services in the 21.5-23.6, 25.25-27.5, 71-76, and 81-86 GHz Bands*, Petition for Rulemaking, RM-11809 (May 31, 2018) (“Petition”). The *Petition* requested that the Commission commence a rulemaking within one year pursuant to Section 7 of the Communications Act, as amended, which requires “[t]he Commission [to] determine whether any new technology or service proposed in a petition or application is in the public interest within one year after such petition or application is filed.” 47 U.S.C. § 157(b). See *Petition* at 103-112.

Elefante Group’s proposal, which was promptly placed by the Commission on public notice within seven business days after it was filed,⁵ squarely falls within the scope of the second part of the upcoming *Report*: the foundation of the *Petition* is access by SBCS operators to encumbered spectrum – more than four gigahertz of spectrum within the range identified by Congress⁶ – and sharing that spectrum in a compatible manner that permits both the SBCS *and the Federal and non-Federal incumbent services* to grow and evolve.⁷

Elefante Group submits that the proposed framework to enable new and transformative SBCS services and technologies to share encumbered spectrum is important to bring to the further attention of Congress in the *Report*. Elefante Group’s proposed stratospheric platform stations (“STRAPS”), on which it is working with the Lockheed Martin Corporation (“Lockheed Martin”) on the technologies, will make possible communications solutions that will be demanded by next-generation network operators, including 4G and 5G backhaul (enabling rapid buildout of new spectrum networks in rural areas and urban areas, as well as supporting densification in already well-served urban areas), enterprise Wide Area Networks, and residential and small business broadband services.⁸ SBCS, as planned by Elefante Group, would benefit the residential, small business, communications, government, enterprise, and institutional

⁵ See *Consumer & Governmental Affairs Bureau Reference Information Center Petition for Rulemakings Filed*, Public Notice, Report No. 3093 (June 11, 2018).

⁶ Namely, the 22-23 and 26 GHz Bands.

⁷ See *Petition* at 66-78. The incumbents with whom Elefante Group would be sharing the 22-23 and 26 GHz Bands include the Fixed Service, Aeronautical Mobile Service, Inter-Satellite Service, Earth Exploration Satellite Service, Space Research Service, and Radio Astronomy Service.

⁸ See *id.* at 23-27.

sectors. Elefante Group, provided the Commission puts a SBCS regulatory framework in place in a timely fashion, plans to launch commercial service in 2022.⁹

Furthermore, SBCS deployments will provide coverage to a large area ubiquitously on day one of deployment and will therefore bypass the many infrastructure problems that plague and delay ground-based terrestrial buildouts, sometimes for years after they start.¹⁰

Consequently, timely deployment of Elefante Group's SBCS systems will accelerate next-generation deployment and introduction of Internet of Things ("IoT") applications in this country, as well as service numerous other national objectives, including bridging the digital divide in both rural areas and "urban deserts," supporting the maintenance and restoration of communications during and following natural disasters, and creating thousands of American jobs.¹¹

SBCS, as proposed in the *Petition*, presents a novel opportunity for intensive sharing and deriving additional uses out of encumbered spectrum without putting material constraints on the existing operations of incumbents or undermining the growth and evolution of co-primary incumbent services.¹² This is possible largely because of the overhead geometry of STRAPS deployments,¹³ in combination with certain basic technical and operational thresholds and limits and, when needed, coordination obligations. Indeed, following many months of analysis in 2017

⁹ See *id.* at 2.

¹⁰ See *id.* at 3; see also Reply Comments of Elefante Group, Inc., RM-11809, GN Docket No. 14-177, at 14 (Aug. 15, 2018) ("Elefante Group Reply Comments").

¹¹ See *Petition* at 21-41.

¹² See *id.* at 55-79.

¹³ Elefante Group's STRAPS will operate at nominally fixed locations at approximately 65,000 ft. altitude (less than 20 km) and support high-capacity SBCS (1 Tbps in both directions between the STRAPS and fixed user terminals) and IoT-enabling solutions, with each platform capable of serving a coverage area of 15,400 km² (6,000 mi²). *Id.* at 13.

and early 2018, Elefante Group, based on Lockheed Martin’s compatibility analyses chose the spectrum bands set out in the *Petition* – including the 22-23 and 26 GHz Bands – in large part because of their suitability for introducing SBCS on a compatible basis with incumbents.¹⁴ The *Petition* and Elefante Group’s Reply Comments on the *Petition* support these conclusions regarding sharing based on the compatibility analyses conducted by Lockheed Martin.¹⁵ Further, it is worth noting that, because of the altitude of STRAPS,¹⁶ multiple designs for SBCS operating on a shared basis among each other, as well as incumbents, are possible.¹⁷

The SBCS is a wholly novel technology-enabled service with tremendous benefits. It would be without parallel in the world when deployed for the first time, and Elefante Group encourages the Commission to discuss its proposal in the *Report* so as to give the Congress a full picture on proposals to promote sharing and identify additional spectrum bands that can be shared between 6 GHz and 57 GHz. SBCS clearly qualifies, not only for Section 7 treatment as a new service and technology, but as a “new licensed . . . service” that would be made possible by sharing “at least 1 gigahertz between 6 GHz and 57 GHz,”¹⁸ thereby qualifying for the *Report*.

Elefante Group remains at the disposal of the Commission to answer any inquiries regarding its proposed shared use and to provide any further information that may be helpful to

¹⁴ See *id.* at 55-79.

¹⁵ See *id.* at 66-79, Appendices at B-S (discussion and studies regarding SBCS sharing with incumbents); see also *Elefante Group Reply Comments* at 29-54, Exhibits 2-3 (further discussion and analyses regarding sharing with incumbents in the 22-23 and 26 GHz Bands).

¹⁶ The *Petition* proposes that STRAPS can operate between 18-26 km altitudes, see *Petition* at 86, although Elefante Group plans to operate at ~19.8 km with a small variance, see *id.* at 13.

¹⁷ See *id.* at 79-81, 95-96, Appendices T-U (discussing spectrum sharing and coordination among diverse SBCS operators).

¹⁸ *Notice* at 1.

the Commission in completing its *Report*, to the extent not referenced in the Commission's records herein.

Conclusion

For the foregoing reasons, in its *Report* to Congress pursuant to the *Spectrum Pipeline Act*, the Commission should include discussion of Elefante Group's proposal to establish SBCS in the 22-23 and 26 GHz Bands (complemented by the 70/80 GHz Bands) on a shared basis with Federal and non-Federal incumbent users.

Respectfully submitted,

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